

PATENT ABSTRACTS OF JAPAN

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(54) CURABLE COMPOSITION AND ITS USE

(57)Abstract:

PURPOSE: To obtain a curable compsn. which gives a cured item having a surface hardly attracting dust by compounding a specific org. polymer and a polymer of a polyfunctional hydrolyzable silane compd. as the essential components.

CONSTITUTION: This compsn. contains as the essential components an org. polymer having at least one reactive silyl group in the molecule and a polymer of a polyfunctional hydrolyzable silane compd. and is useful as a sealant and a coating agent. The org. polymer favorably is a deriv. of a polymer, such as of a polyether, a polyester, polyisobutylene, polychloroprene, or polybutadiene, a deriv. of a polyether being more favorable and a polyoxypropylene compd. having a reactive silyl group at the molecular end being the most favorable. Pref. examples of the silane compd. are methyltrimethoxysilane and tetramethoxysilane.

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CLAIMS

[Claim(s)]

[Claim 1] An organic polymer (A) which has at least one reactive silyl groups in intramolecular, and a hardenability constituent which uses a polymer (B) of a polyfunctional hydrolytic silane compound as an essential ingredient.

[Claim 2] A sealing agent which consists of a hardenability constituent of claim 1.

[Claim 3] A coating obtained by having applied a hardenability constituent of claim 1 to a substrate, and having suffered it.

[Translation done.]

hardenable constituent of this invention on the surface of a substrate for which especially antifouling property is needed, and considering it as a coating. As a substrate, a hardened material etc. which harden sealing agents other than a metal plate, a board made of a synthetic resin, a sheet, and a hardenable constituent of this invention are mentioned.

[0048]

[Examples] Hereafter, although an example (Examples 1-5, Examples 8-11) and a comparative example (Examples 6-7, Examples 12-13) explain this invention concretely, this invention is not limited to these.

[0049][Example 1 of manufacture] Propylene oxide was polymerized with the zinchexaoxide cobaltate catalyst by having used the diethylene glycol propylene oxide addition of the molecular weight 1000 as the initiator, and polyoxypropylene diol of the average molecular weight 10000 was obtained. Isopropyltrimethoxysilane was added to this, the reaction was continued for 20 minutes, and the hydroxy group of both ends was changed into the trimethoxy dimethoxy silyl end group, and the organic polymer (P1) which has an average of 1.2 reactive silyl groups per molecule was obtained.

[0050][Example 2 of manufacture] Propylene oxide was polymerized with the zinchexaoxide cobaltate catalyst by having used the diethylene glycol propylene oxide addition of the molecular weight 1000 as the initiator, and polyoxypropylene diol of the average molecular weight 17000 was obtained. After adding the methanol solution of sodium methylate to this and removing methanol, the allyl chloride was added and terminal hydroxyl groups was changed into the allyloxy group.

Furthermore, the addition reaction of the methyl dimethoxysilane was carried out by having made chloroplatinic acid into the catalyst, and the organic polymer (P2) which has an average of 1.6 reactive silyl groups per molecule was obtained.

[0051][Example 3 of manufacture] Propylene oxide was polymerized with the zinchexaoxide cobaltate catalyst by having used the glycerin propylene oxide addition of the molecular weight 1000 as the initiator, and polyoxypropylene triol of the average molecular weight 15000 was obtained. After adding the methanol solution of sodium methylate to this and removing methanol, the allyl chloride was added and terminal hydroxyl groups was changed into the allyloxy group. Furthermore, the addition reaction of the methyl dimethoxysilane was carried out by having made chloroplatinic acid into the catalyst, and the organic polymer (P2) which has an average of 1.6 reactive silyl groups per molecule was obtained.

[0052][Example 4 of manufacture] After mixing powder caustic alkali of sodium to polyoxypropylene diol of the average molecular weight 4000, the mixture was reacted to bromine and then it was made to react to an allyl chloride further, and the polyoxypropylene diol of the average molecular weight 1000 was obtained. After adding the methanol solution of sodium methylate to this and removing methanol, the allyl chloride was added and terminal hydroxyl groups was changed into the allyloxy group. Furthermore, the addition reaction of the methyl dimethoxysilane was carried out by having made chloroplatinic acid into the catalyst, and the organic polymer (P2) was obtained. The average molecular weight of polyoxypropylene diol conversion of this organic polymer was 11000.

[0053][Example 5 of manufacture] The tetraethoxysilane was hydrolyzed and the silane compound (B1) of the average molecular weight 744 which is a polymer of a tetraethoxysilane was obtained.

[0054][Example 6 of manufacture] The tetramethoxy silane was hydrolyzed and the silane compound (B-2) of the average molecular weight 390 which is a polymer of a tetramethoxy silane was obtained.

[0055][Examples 1-7] As opposed to 100 copies (it is [a weight section and the following (1, the name) of the organic polymers P1-P4, 50 copies of dioctyl phthalate, 120 copies of calcium carbonate, ten copies of titanium oxide. Three copies of hydrogenation castric oil, three copies of vinyltrimethoxysilane, one copy of phenolic antioxidant. The silane compound B1 or B-2 shown in two copies of amino silanes and a table was kneaded as five copies and a curing catalyst for silicon resin under the conditions into which hyposcopic surface moisture does not go two copies of dibutyltin dilaurate, and the hardenable constituent was obtained (Examples 1-5).

[0056] The silane compound B1 - B-2 were not blended, and also the hardenable constituent was obtained similarly (Example 6). Furthermore instead of the silane compound B1 - B-2, the hardenable constituent which added five copies of tetraethoxysilane (silane compound (B3)) was obtained (Example 7).

[0057] By exposing to humidity, these constituents started hardening promptly and changed to the good rubber elastomer. The result of having applied the surface atomization nature, three months after exposing a presentation and hardened material of each hardenable constituent to the

outdoors is shown in Table 1. Evaluation of surface contamination nature made O fitness, and made x poor.

[0058][Examples 8-13] When the hardenable constituent obtained in Example 2 and Example 4 was applied to the substrate shown in Table 2 by a thickness of 2 mm and having been exposed to humidity, hardening was started promptly and the hardened material obtained the coating firmly pasted up on this base material surface. The result of having evaluated the surface contamination nature three months after exposing this coating to the outdoors further is shown in Table 2.

Examples 12-13 look at the surface contamination nature of substrate I and RO which is not covered with a hardenable constituent for comparison. Substrate I shows an aluminum plate in substrate RO shows a poly chlorinated vinyl sheet. Evaluation of surface contamination nature is the same as that of the above.

[0059]

[Table 1]

例	1	2	3	4	5	6	7
有機重合体	P1	P2	P3	P4	P2	P2	P2
シラン化合物	B1	B1	B1	B1	B2	-	B3
表面汚染性	○	○	○	○	○	×	×

[0060]

[Table 2]

例	8	9	10	11	12	13
硬化剤組成物	例2	例2	例4	例4	-	-
基材	Ⅰ	Ⅰ	Ⅰ	Ⅰ	Ⅰ	Ⅰ
表面汚染性	○	○	○	○	×	×

[0061]

[Effect of the Invention] Preventable contamination nature of the surface of the coating obtained by having applied to the substrate the hardened material and hardenable constituent of this invention which harden a hardenable constituent, and having stiffened them is improving extremely.

[Translation done.]